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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/708,498	11/09/2000	Katsunori Kawano	100390.01	4183

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EXAMINER

ANGEBRANNDT, MARTIN J

ART UNIT	PAPER NUMBER
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1756

DATE MAILED: 07/23/2002

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/708,498

Applicant(s)

KAWANO ET AL.

Examiner

Martin J Angebrannt

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 29 May 2002.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-7 and 53 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-7 and 53 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____.
- 4) ☐ Interview Summary (PTO-413) Paper No(s). _____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____.

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1. The response of the applicant has been read and given careful consideration. Rejections of the previous office action not repeated below are withdrawn in view of the amendments to the claims. Responses are moot in view of the amendments to the claims, although commentary will be provided to illustrate the differences in the disclosed invention of the fifth embodiment and the inventions of the prior art.

2. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

3 Claims 1-7 and 53 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

In claim 53, the claim incorrectly identifies the requirements of the recording. Note that in the fifth embodiment, the recording methods shown in figure 3a and figure 3b are both used. In the case of figure 3a the polarization of both the reference and signal beams is "S" and represents conventional holographic recording where the fringe pattern is visualizable during recording as variations in the intensity of the various points forming the interference pattern. In the case of figure 3b (polarization holography), the reference beam is in the "S" polarization and the signal beam is in the "P" polarization and during recording the interference pattern is not visualizable without polarizing means. The language of the claim does not clearly indicate that the reference beam polarization is maintained and the signal polarization is changed and that the reference and signal beam in the second recording are orthogonally polarized. The claims also should indicate that all the beams are linearly polarized.

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With respect to claim 1, the term light intensity hologram is misleading as it does not indicate how this is multiplexed with the polarization hologram. The applicant should incorporate language from the specification concerning figures 3a and 3b to clearly indicate the coverage sought.

4 The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(a) the invention was known or used by others in this country, or patented or described in a printed publication in this or a foreign country, before the invention thereof by the applicant for a patent.

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

(e) the invention was described in a patent granted on an application for patent by another filed in the United States before the invention thereof by the applicant for patent, or on an international application by another who has fulfilled the requirements of paragraphs (1), (2), and (4) of section 371(c) of this title before the invention thereof by the applicant for patent.

The changes made to 35 U.S.C. 102(e) by the American Inventors Protection Act of 1999 (AIPA) do not apply to the examination of this application as the application being examined was not (1) filed on or after November 29, 2000, or (2) voluntarily published under 35 U.S.C. 122(b). Therefore, this application is examined under 35 U.S.C. 102(e) prior to the amendment by the AIPA (pre-AIPA 35 U.S.C. 102(e)).

5 The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

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6 Claims 1 and 53 are rejected under 35 U.S.C. 102(b) as being fully anticipated by Sharnoff et al. '527.

Sharnoff et al. '527 describes the recording of two different holograms simultaneously where the reference beams are orthogonally polarized. (16/1-11). In the case of the simultaneous recording a reference beam in each polarization is present for each of the object beams and four holograms are recorded. Two are the conventional holograms corresponding to the intensity modulated holograms of the instant specification and two polarization holograms observable only with polarizing means.

The applicant might amend claim 1 to recite a product by process with consisting essentially of language to preclude the presence of the second polarization and intensity holograms of this reference.

The conventional polarization multiplexing changes the polarization of both the reference and object beams while maintaining their orthogonality to each other.

7 Claims 1 and 53 are rejected under 35 U.S.C. 102(a) as being fully anticipated by Ono JP 09-269719.

Ono JP 09-269719 describes the embodiment of figure 3, where two different holograms simultaneously where the reference beams are orthogonally polarized. [0019-0021]. In the case of the simultaneous recording a reference beam in each polarization is present for each of the object beams and four holograms are recorded. Two are the conventional holograms corresponding to the intensity modulated holograms of the instant specification and two polarization holograms observable only with polarizing means.

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The applicant might amend claim 1 to recite a product by process with consisting essentially of language to preclude the presence of the second polarization and intensity holograms of this reference. The recording of the two holograms serially would preclude the formation of associated holograms.

8 Claims 1,2,4 and 53 are rejected under 35 U.S.C. 103(a) as being unpatentable over either Sharnoff et al. '527 or Ono JP 09-269719, in view of Todorov, L., et al., Polarization Holography. 2: Polarization holographic gratings in photoanisotropic materials with and without intrinsic birefringence", Appl. Opt., Vol. 23(24) pp. 4588-4591 (12/1984).

Todorov, L., et al., Polarization Holography. 2: Polarization holographic gratings in photoanisotropic materials with and without intrinsic birefringence", Appl. Opt., Vol. 23(24) pp. 4588-4591 (12/1984) exemplifies the recording of polarization holograms using Methyl Orange (4[[[(4-dimethylamino)phenyl]azo]benzene sulfonate) with polyvinyl alcohol as the recording medium and polarized argon ion laser beams. This includes the recording of conventional holograms where the linear polarizations of the recording light are parallel or orthogonal as shown in figure 1 and table 1.

It would have been obvious to one skilled in the art to modify the process of either Sharnoff et al. '527 or Ono JP 09-269719 by using the holographic recording materials of Todorov, L., et al., Polarization Holography. 2: Polarization holographic gratings in photoanisotropic materials with and without intrinsic birefringence", Appl. Opt., Vol. 23(24) pp. 4588-4591 (12/1984) based upon the disclosure that the materials of Todorov, L., et al., Polarization Holography. 2: Polarization holographic gratings in photoanisotropic materials with and without intrinsic birefringence", Appl. Opt., Vol. 23(24) pp. 4588-4591 (12/1984) are

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amenable to polarization holographic recording and the lack of materials disclosed in Sharnoff et al. '527 or Ono JP 09-269719 with a reasonable expectation of forming the desired holograms.

9 Claims 1,2,4,7 and 53 are rejected under 35 U.S.C. 103(a) as being unpatentable over either Sharnoff et al. '527 or Ono JP 09-269719, in view of Savant et al. '221.

Savant et al. describes polyethylene vinyl alcohol grafted with polyamide with various azo dyes dispersed therein in examples XIII-XX. The structure of these azobenzene dyes are shown in columns 9-18. The use of disks as the substrate are disclosed. (8/4-14 and 26/6-23 and examples described at 24/9-19). The recording of holograms including polarization multiplexing is disclosed. (25/46-26/5).

It would have been obvious to one skilled in the art to modify the process of either Sharnoff et al. '527 or Ono JP 09-269719 by using the holographic recording materials of Savant et al. '221 based upon the disclosure that the materials of Savant et al. '221 are amenable to polarization holographic recording and the lack of materials disclosed in Sharnoff et al. '527 or Ono JP 09-269719 with a reasonable expectation of forming the desired holograms.

10 Claims 1-3,5 and 53 are rejected under 35 U.S.C. 103(a) as being unpatentable over either Sharnoff et al. '527 or Ono JP 09-269719, in view of Natansohn et al. '381.

Natansohn et al. '381 describes polyesters with pendant azobenzenes. (4/40-5/64). The section entitled "Optical Image Recording" in column 7 evidenced the recording of polarization holograms in media containing both a polymer and a polymer containing an azobenzene structure. (7/38-8/12). The use of polyesters as the backbone is disclosed. (4/41-5/63).

It would have been obvious to one skilled in the art to modify the process of either Sharnoff et al. '527 or Ono JP 09-269719 by using the holographic recording materials of

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Natansohn et al. '381 based upon the disclosure that the materials of Natansohn et al. '381 are amenable to polarization holographic recording and the lack of materials disclosed in Sharnoff et al. '527 or Ono JP 09-269719 with a reasonable expectation of forming the desired holograms.

11 Claims 1-3,6 and 53 are rejected under 35 U.S.C. 103(a) as being unpatentable over either Sharnoff et al. '527 or Ono JP 09-269719, in view of Eich et al. '784.

Eich et al. '784 discloses a mixture of isomerizable compounds (6/24-54). Polymeric liquid crystals including polyesters are disclosed, (7/27-9/34). The recording of information using an argon ion laser and the use of two polarized laser beams is disclosed. (14/59-15/29).

It would have been obvious to one skilled in the art to modify the process of either Sharnoff et al. '527 or Ono JP 09-269719 by using the holographic recording materials of Eich et al. '784 based upon the disclosure that the materials of Eich et al. '784 are amenable to polarization holographic recording and the lack of materials disclosed in Sharnoff et al. '527 or Ono JP 09-269719 with a reasonable expectation of forming the desired holograms.

12 Claims 1-7 and 53 are rejected under 35 U.S.C. 103(a) as being unpatentable over either Sharnoff et al. '527 or Ono JP 09-269719, in view of Natansohn et al. '381 or Eich et al. '784 combined with Savant et al. '221.

In addition to the basis provided above, it would have been obvious to one skilled in the art it would have been obvious to modify the combination of either Sharnoff et al. '527 or Ono JP 09-269719 with either Natansohn et al. '381 or Eich et al. '784 to use a disk shaped holographic recording medium as this is known in the polarization holographic recording media art as evidenced by Savant et al. '221.

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13 Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a).

Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the date of this final action.

14 Any inquiry concerning this communication or earlier communications from the examiner should be directed to Martin J Angebrannt whose telephone number is 703-308-4397. The examiner can normally be reached on Mondays-Thursday and alternate Fridays.


If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Mark Huff can be reached on 703-308-2464. The fax phone numbers for the organization where this application or proceeding is assigned are 703-872-9310 for regular communications and 703-872-9311 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-308-0661.

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Martin J Angebranndt
Primary Examiner
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July 17, 2002